Clean corrected copy of the claims PEB1 CON

1. A vehicle suspension system placed between a chassis having a sprung weight and a plurality of wheel axle supports each carrying a portion of an unsprung weight, the suspension system comprising:
a resilient load bolster mounted between the chassis and the wheel axle support to carry the chassis at a ride height relative to the wheel axle support, and a resilient member affixed between each wheel axle support and the chassis for exerting increasing force there between as a function of the amount of rebound motion of the sprung weight away from the wheel axle support, the resilient member mounted between the chassis and the wheel axle support for initiating application of force during jounce motion for transition from loading beyond the ride height.

2. A vehicle suspension system placed between a chassis having a sprung weight and each of a plurality of wheel axle supports carrying unsprung weight, the vehicle suspension system at least operative to independently control motion between the chassis and each wheel axle support during jounce and rebound, the vehicle suspension system including a plurality of load springs having an elastic constant, each load spring located between the chassis and its respective wheel axle support, each of the plurality of respective load springs for supporting the sprung weight of the chassis carried there on at a ride height relative to its respective wheel axle support and for substantially carrying the sprung weight during jounce motion of the chassis, each of the respective load springs mounted to the chassis for flexing between the chassis and its respective wheel axle support for resisting motion of the chassis sprung weight under load and during jounce, the vehicle suspension system comprising:
a rebound control spring mounted to the chassis and each wheel axle support for exerting increasing force to its respective wheel axle support during rebound motion of the sprung weight of the chassis away from its respective wheel axle support, each rebound control spring operatively mounted in opposition to its respective load spring for increasing resistance to chassis sprung weight rebound motion and to initiate the application of resistance to rebound motion of

the chassis by transfer of the unsprung weight of each respective wheel axle support through each rebound control spring to the chassis upon motion of the sprung weight away from its respective wheel axle support, each respective rebound control spring mounted to oppose the jounce motion of the load spring to provide a transition between the end of jounce motion and the beginning of rebound motion as the rebound motion of the chassis sprung weight is resisted by its respective wheel axle support.

3. The suspension system of claim 2 wherein the rebound control spring is elastic to stretch sufficiently between the chassis and its wheel axle support even when the load spring is compressed to its maximum load capacity.

4. The suspension system of claim 2 wherein therein the chassis has a substantially rectangular footprint having four wheels disposed generally to carry the corners thereof with each corner having its wheel axle support moveably carried by its respective load spring and its respective rebound spring to resist jounce and rebound at each corner respectively.

5. The suspension system of claim 2 wherein each of the respective rebound control springs includes a coil spring having sufficient jounce and rebound motions to maintain connection with the chassis and its respective wheel axle support even when its respective load spring is compressed to its maximum load position during jounce.

6. The suspension system of claim 5 wherein each load spring is a coil coaxial with a load spring axis disposed between the chassis and each respective wheel axle support, each coil load spring having a concentric volume defined thereby and located there within and each respective rebound control spring disposed within the concentric volume for movement therein without binding with the coil load spring during jounce, rebound and transition.

7. The suspension system of claim 5 wherein each load spring is coaxial with a load spring axis disposed between the chassis and each respective wheel axle support, and each rebound control spring is spaced apart from the load spring along a tension spring axis generally parallel to the load spring axis of each coil

load spring as each rebound control spring moves relative to its respective coil load spring during jounce, rebound and transition.

8. The suspension system of claim 2 wherein the rebound control spring is mounted to the chassis and its respective wheel axle support for elastically tethering between the chassis and its respective wheel axle support to maintain connection there between even when the load spring is beyond its maximum load capacity.

9. The suspension system of claim 2 wherein the rebound control spring is a torsion spring with torque preloaded sufficiently between the chassis and the wheel axle support to maintain connection there between even when the load spring is beyond its maximum load capacity.

10. A method of resisting roll with a vehicle suspension system placed between a chassis having a sprung weight and a plurality of wheel axle supports each carrying a portion of an unsprung weight, the vehicle suspension system operative along a line of travel between the chassis and the wheel axle support during jounce and rebound, the method having steps comprising:

applying loads to the wheel axle support with a resilient load bolster having an elastic constant K, the resilient load bolster mounted to the chassis;

flexing the resilient load bolster with respect to the wheel axle support with movement along the line of travel under load and during jounce;

carrying with the resilient load bolster when preloaded the chassis at a preset ride height relative to the wheel axle support;

connecting a suspension platform to the wheel axle support;

attaching the suspension platform for bearing against the resilient load bolster;

reciprocating the suspension platform for along the line of travel during jounce and rebound;

attaching a resilient member having an elastic constant K_T to the suspension platform and to the chassis for exerting increasing force on the chassis along the line of travel and against the rebound motion of the sprung weight of the chassis

applying increasingly less rebound force to the resilient load bolster during jounce through and beyond the preset ride height as the resilient member resists the rebound motion of sprung weight away from the wheel axle support;

operating the resilient member in opposition to the resilient load bolster;

resisting the rebound motion of the sprung weight with motion of the unsprung weight during rebound of the unsprung weight away from the chassis, and

mounting the resilient member to oppose at least the initiation of jounce for acting in opposition to the resilient load bolster with the resilient member resisting rebound motion of the chassis away from the wheel axle support.